

January 1968

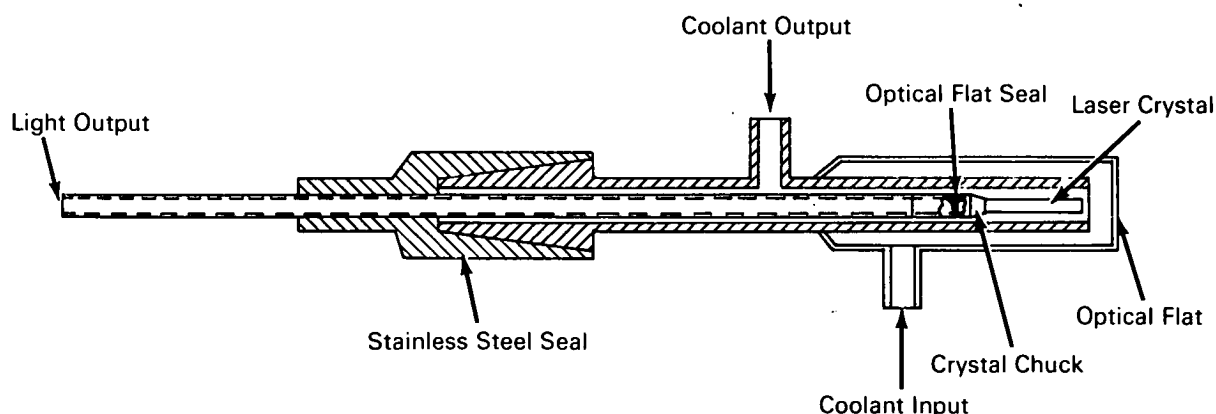
Brief 68-10010

NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Flow Tube Used To Cool Solar-Pumped Laser



A flow tube has been designed and constructed to provide two major functions in the application of a laser beam for transmission of both sound and video. First, it maintains the YAG laser at the proper operating temperature of 300°K under solar pumping conditions; and, second, it serves as pump cavity for the laser crystal.

The flow tube includes a small four-jaw chuck that holds the laser crystal in place. Cooling of the laser is accomplished by forcing water through the flow tube under pressure and circulating it through a copper coil heat exchanger mounted in a cool water bath. Pure, deionized water is used to prevent contamination of the crystal end reflectors by particles contained in ordinary tap water. The coolant section also serves as the pump cavity. The inside walls are silver plated and diffusely reflect pump light entering

the flow tube at other than normal incidence so that efficient use can be made of available pump power.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Manned Spacecraft Center
Houston, Texas 77058
Reference: B68-10010

Patent status:

No patent action is contemplated by NASA.

Source: Radio Corporation of America
under contract to
Manned Spacecraft Center
(MSC-11026)

Category 02